Heat Injury Risk Management

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Outline

- Five steps of heat injury risk management
- Exertional heat injuries
- Water intoxication

Five Steps of Heat Injury Risk Management

- Identify hazards
- Assess hazards
- Develop controls
- Implement controls
- Supervise and evaluate

Heat Injury Hazards are Cumulative

- H- Heat category past 3 days
- E- Exertion level past 3 days
- A- Acclimation/ other individual risk factors
- T- Temperature/rest overnight

- Cluster of heat injuries on prior days= HIGH RISK

Acclimation

- Acclimation guide for elite schools on CHPPM website
- Acclimation requires aerobic exercise in warm environment. Simply being outside doing normal activities is not sufficient

Individual Risk Factors

- Poor fitness (2 mi run > 16 min)
- Large body mass
- Minor illness
- Drugs (cold and allergy, blood pressure)
- Highly motivated

Individual risk factors

- Supplements- ephedra
- Recent alcohol use
- Prior heat injury
- Skin problems- rash, sunburn, poison ivy
- Age>40

Hydration/Salts

- Buddy system
- Track canteens with 550 cord or pace count cord
- Land nav- place water points at objectives
- Electrolyte drinks
- Monitor meal intake

Impact of dehydration

- Degrades performance
  -4% dehydration degrades performance 50%

- Increases core body temp
  -Every 1% increases core temp .1-.23 C

Risk Mitigation
Avoid Heat Loading

- Modify schedule- time of day, rest
- Clothing- no t-shirt, kevlar
- Formations:
  - Wide spacing
  - Shade soldiers whenever possible
- Cumulative- avoid strenuous back-to-back events

Risk Mitigation
Dump heat load

- Cool overnight temp
- Cold showers

Develop Controls

- All unit leaders must be familiar with heat injury prevention and recognition
- Mark Soldiers who are high risk
- Ensure water points accessible/ utilized

Other Controls

- Track Wet Bulb Globe Temp (WBGT)
- Track hydration of Soldiers
- Fluid replacement/ work/ rest guidelines
- Keep urine clear

Implement controls

- Enforce policies
- Spot check junior leaders
- If 1-2 soldiers suffer heat injury- stop training and assess situation

Symptoms of mild injury

- Dizziness
- Headache
- Nausea
- Unsteady walk
- Weakness
- Muscle cramps
- These folks need rest, water, evaluation
- These are your “canaries in the mine”

Mild heat injury management

- Rest soldier in shade
- Loosen uniform/ remove head gear
- Have soldier drink 2 quarts of water over 1 hour
- Evacuate if no improvement in 30 min, or if soldier’s condition worsens

Heat Stroke

- Abnormal brain function- elevated body temperature

- Examples:
  - Confused
  - Combative
  - Passed out
  - Sudden death

Heat Stroke

- When a soldier's brain isn't working correctly- **COOL** and **CALL**
- Treat any soldier who develops abnormal brain function during warm weather activity as a heat stroke victim
- The sooner a victim with heat stroke is cooled, the less damage will be done to his brain and organs

Pre-hospital care

- Cooling is first priority- can reduce mortality from 50% to 5%
- Drench with water
- Fan
- Iced sheets
- Massage large muscles while cooling
- Stop if shivering occurs

Rapid cooling

- Cover as much exposed skin as possible with the cold, icy sheets.
- Also cover the top of the head
- When sheets warm up, put them back into cooler and then reapply

Evacuation criteria

- Vomits more than once
- No improvement after 1 hour of rest and hydration
- General deterioration
- Loss of consciousness/ mental status changes

- Evacuate any soldier who requires cooling with iced sheets due to abnormal brain function to the MEDDAC ER

Water intoxication

- Usually occurs in TRADOC units
- Mental status changes
- Vomiting
- History of large volume of water consumed
- Poor food intake
- Abdomen distended/bloated
- Copious clear urine

Summary

- Five steps of heat injury risk management
- Exertional heat injuries
- Water intoxication

Scenario
Awake victim-
muscle cramps/headache

Scenario
Awake victim-
muscle cramps/headache

- Move to shade/ or air conditioning
- Remove outer layer of clothing/ headgear

- 2 canteens of water over 1 hour

Scenario
Awake victim- abnormal behavior

Scenario
Awake victim- abnormal behavior

- Move to shade
- Remove outer layer of clothing
- Call for evacuation
- Begin rapid cooling- iced sheets
- May start IV after evacuation and cooling started

Additional Information

- Heat injury prevention posters
- Risk management worksheet and video
- CHPPM website
- TRADOC Website
- Evacuation algorithm

Questions?

Drugs that Interfere with Thermoregulation

- Antihistamines (benadryl, atarax, ctm)
- Decongestants (sudafed)
- High Blood Pressure (diuretics, beta blockers)
- Psychiatric Drugs (tricyclic antidepressants, antipsychotics)